Solar Eclipse Field Guide

Visual Safety

- Never look at the sun without approved solar viewing glasses, or a solar viewer for those wearing eyeglasses

Digital SLR Cameras

- Never view the eclipse through the camera's viewfinder unless you have a solar filter safe for photography ***and viewing***.
- Use LCD screen only if you don't have a ***viewing safe*** solar filter
- Bring additional fully charged camera batteries
- Bring a white towel to wrap up the camera and lens(es), to protect from heat and sun
- Use Canon Angle Finder C if you have a fixed LCD screen display and using a solar filter safe for photography ***and viewing***
- Use a remote switch or Timer Remote Controller TC-80N3 (for time-lapse or hands-free shutter operation)
- Use a focusing loupe, such as a Hoodman viewer, on LCD screen for critical manual focus

Totality Settings

- During totality, after Baily's beads, remove the solar filter
- Put totality exposure settings in Custom Mode C2
- As a starting point, set your Manual exposure to 1/125th of a second
- Bracket exposures up to 7 frames (if possible) during totality
- Bracket in two-stop segments (not one as we'd normally do)
- Your shutter speeds will be 1/2 sec., 1/8 sec., 1/30 sec., 1/125 sec., 1/500 sec., 1/2,000 sec. and 1/8,000 sec
- Return the solar filter the moment Baily's beads re-appear
- Return to exposure settings in Custom Mode C1
- In the Custom Functions menu area, change the order of bracketed shots from 0-+ to -0+ (under, normal, over)
- Check the app (below) to find the length of totality in your area

Partial Eclipse Settings

Begin Exposure testing with 1,1000 sec., f/11. ISO 400
Change ISO as needed to find the best exposure
Load this exposure into your Custom Mode C1

Lens

- Use an approved solar filter that completely covers the front of the lens (referred to as a full aperture filter)
- Never use a make-shift solar filter in the rear filter tray of Canon's large L series lenses
- Check the sun disk sizes in the "*Choosing Lenses*" article on the Canon web page (below) to select your lens or zoom setting
- Keep the sun disk to about 1/3 the size of the frame to allow for the corona at totality
- Keep all lens surfaces clean
- Turn off image stabilization (if the camera is tripod-mounted)

Focus

- Use manual focus where possible
- Tape down focus and zoom rings
- Periodically check focus
- Use LCD magnification feature with a magnifying loupe for critical manual focusing

Solar filters

- Only use approved solar filters
- Never use neutral density (ND) filters or variable neutral density filters, designed for regular photography, regardless of light restricting amount— these can be extremely dangerous for solar photography, and they don't block infrared or ultraviolet light. The same is true of polarizing filters.
- Use the solar filter on all phases of the eclipse except at maximum (total) eclipse phase
- Only use a solar filter that completely covers the front of the lens
- Never use a solar filter in the rear filter tray on the large Canon L series super-telephoto lenses

Exposure

- Always use your solar filter for all partial phases of an eclipse
- Begin testing exposure combinations in the weeks before the eclipse
- Shoot tests in various midday weather conditions, ranging from clear to thin clouds
- Use manual exposure settings ISO, f-stop and shutter speeds
- Bracket your exposures for greater flexibility
- Load your best solar filter exposures into your camera's C1 custom setting mode for all partial phases
- Load your filter-less totality exposures into C2 custom setting mode
- Shoot RAW (and JPEGs only if you need them)
- Shoot to two memory cards if your camera offers that feature
- Use fast cards minimum write speed of 90 MB/s for SD cards
- Use fast cards minimum write speed of 150 MB/s for CF cards
- Double the memory card GB capacity if you think you'll need it

Camera settings

- High-Speed continuous shooting
- Bracketing: seven frames at two-stop intervals during totality
- Daylight white balance
- Fine Detail picture style
- Manual Focus by turning off Autofocus on the lens
- Make sure your Date and Time are accurate
- Set the Image Quality to RAW; or RAW and JPEG if you're doing social media
- You'll be using Live View during the eclipse so you won't have to use Mirror lockup
- During partial phases you might consider using the Interval timer (see our article on Totality shooting)
- If you have it, turn on your LCD grid display so you'll have a center mark to help center the sun throughout the eclipse
- Leave High ISO Speed Noise Reduction in Standard mode
- Turn off Long Exposure Noise Reduction
- If you're going to bracket your exposures, be sure it's one of the settings you have active when you memorize camera settings with the "custom" shooting modes (If your camera offers this feature).

Eclipse/Weather apps

- Eclipses by Olav Andrade
- Solar Eclipse Timer by Gordon Telepun
- Solar Eclipse Timer GPS Converter by Gordon Telepun
- RadarCast Doppler weather
- PhotoPills (One of the best photo and eclipse apps made)

Eclipse phases

- *First contact*, when the moon first touches the edge of the sun. This begins partial phases and takes a little over an hour and twenty minutes. Solar filter on.
- *Second contact,* when the moon's farthest edge touches the edge of the sun. Totality is only about 15 seconds away. Prepare to remove your solar filter.
- Diamond ring effect begins a few seconds after Second Contact. Baily's beads is the last moments of the diamond ring effect and signals totality is approximately 5 seconds away. Experienced eclipse photographers prefer to remove solar filter a few seconds into the diamond ring and leave it off the lens throughout totality until the diamond ring effect begins again after totality. Exercise extreme caution if you do this and NEVER look through the camera's viewfinder eyepiece to center the sun in your frame. Always us the LCD screen display.
- *Maximum totality* lasts about 2 minutes and 28 seconds depending on location. Solar filter off
- *Third contact,* when the leading edge of the moon touches the far edge of the sun. End of totality begins about 10 seconds before third contact and Baily's beads appear through the reappearance of the diamond ring effect. Replace the solar filter during diamond ring as the brightness increases. Solar filter back on the lens.
- *Fourth contact*, end of eclipse

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